

Title (en)
SINGLE COMPARTMENT, SELF-ERASING, SOLUTION-PHASE ELECTRO-CHROMIC DEVICES SOLUTIONS FOR USE THEREIN, AND USES THEREOF

Publication
EP 0240226 A3 19890125 (EN)

Application
EP 87302530 A 19870324

Priority
US 84635486 A 19860331

Abstract (en)
[origin: EP0240226A2] Single-compartment, self-erasing, solution-phase electrochromic devices, solutions of electrochromic compounds for use as media of variable transmittance in such devices, and electrochromic compounds for such solutions are provided. The devices of the invention are surprisingly stable to cycling between light and dark states, have continuously variable transmittance to light as a function of electrical potential applied across the solution in a device, and have transmittance that can be varied over more than a factor of 10, from clear to dark or from dark to clear, in several seconds. Thus, the devices are especially suitable as variable transmittance components of variable transmission light filters, including windows, and variable reflectance mirrors, including anti-glare rearview mirrors in automobiles. Also provided are improved variable reflectance mirrors, wherein transmittance of reflected light is varied by thermochromic, photochromic or electro-optic means and wherein the reduction in transmittance which is required to eliminate perceptible reflection of an object to the eyes of an observer is reduced by disposing the plane of the highly reflective surface of the mirror at an angle with respect to the plane of the surface through which light from the object enters the mirror.

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G02F 1/17; **B60R 1/08**; **G02F 1/133**; **C09K 9/02**; **C07D 498/04**; **C07D 513/04**

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Citation (search report)
• [XD] US 3774988 A 19731127 - ROGERS H
• [XD] US 3692388 A 19720919 - HALL JOHN A JR, et al
• [Y] EP 0012419 A1 19800625 - IBM [US]
• [AD] US 3453038 A 19690701 - KISSA ERIK, et al
• [A] US 3912368 A 19751014 - PONJEE JOHANNES JACOBUS, et al
• [Y] PATENT ABSTRACTS OF JAPAN, Vol. 7, No. 64 (P-183)(1209), March 17, 1983; & JP-A-57 208 530 (ICHIKO KOGYO K.K.) 21-12-1982
• [A] Conference Record of 1978 Biennial Display Research Conference, Cherry Hill, N.J.; October 24-26, 1978, pages 23-25; IEEE, New York, US, F.B. KAUFMAN: "New organic materials for use as transducers in electrochromic display devices".

Cited by
US5725809A; EP0613039A2; DE4425866A1; EP1457813A3; US5239406A; US6002511A; US6154306A; EP0552012A3; US5151816A; US5708123A; EP0434452A1; EP1024394A1; CN103963711A; US5145609A; US5115346A; EP0431547A3; EP1048973A4; US5073012A; EP0430686A3; US5233461A; US5076673A; US5239405A; US5424865A; US5611966A; US6143209A; AU731700B2; EP0531143A3; US5500760A; EP1204898A4; EP2270116A3; US6122093A; US5986797A; US5864419A; US5680245A; US5523877A; US5355245A; US7053115B2; US6819467B2; US6785036B1; US6241916B1; US6433912B1; US9733540B2; US5910854A; EP0613039A3; US5076674A; EP0430684A3; US5140455A; US5340503A; US5567360A; US6045724A; EP1529240A4; WO9963401A1; WO0058418A1; WO9923528A3; WO9429314A1; WO9844384A1; WO0045217A1; US10017847B2; US11486033B2; EP0285724B1; WO9805737A1; WO9730134A1; WO0310488A3; WO9964926A3; US7349144B2; US6420036B1; US6855431B2; US6954300B2; US7202987B2; US6207083B1; US7728811B2

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DOCDB simple family (application)
EP 87302530 A 19870324; AU 6804290 A 19901213; AU 7068787 A 19870326; AU 8034394 A 19941208; DE 3751942 T 19870324; DE 3752282 T 19870324; EP 96105850 A 19870324; JP 21969496 A 19960821; JP 23237997 A 19970828; JP 7956287 A 19870331; US 14005298 A 19980826; US 17578193 A 19931230; US 47747000 A 20000104; US 81191401 A 20010319; US 84635486 A 19860331; US 87417592 A 19920423